NA3
11: B56/4
c. 2

North Carolina State Library
Raleigh

N. C.
Doc.

OCT 22 1979

THOROUGHFARE PLAN
BETHEL, NORTH CAROLINA

1979

BIBLIOGRAPHIC DATA SHEET	**1. Report No.**	**2.**	**3. Recipient's Accession No.**
4. Title and Subtitle Bethel's Thoroughfare Plan			**5. Report Date** November 1978 **6.**
7. Author(s) Mid-East Commission/Jack J. Cochran			**8. Performing Organization Rept. No.**
9. Performing Organization Name and Address N. C. Department of Natural Resources and Community Development P. O. Box 27687 Raleigh, North Carolina 27611			**10. Project/Task/Work Unit No.** **11. Contract/Grant No.** 6703
12. Sponsoring Organization Name and Address National Oceanic and Atmospheric Administration 2001 Wisconsin Avenue, N. W. Washington, D. C. 20235			**13. Type of Report & Period Covered** **14.** Final

15. Supplementary Notes

16. Abstracts

This document "Thoroughfare Plan" for the Town of Bethel is a generalized thoroughfare plan that projects the probable general alignment of the main transportation arteries in and around the Town of Bethel. It is based on the desires of the citizens of Bethel.

17. Key Words and Document Analysis. 17a. Descriptors

Bethel's Thoroughfare Plan

17b. Identifiers/Open-Ended Terms

17c. COSATI Field/Group

18. Availability Statement Town Clerk Bethel, NC	**19. Security Class (This Report)** UNCLASSIFIED	**21. No. of Pages** 37
	20. Security Class (This Page UNCLASSIFIED	**22. Price**

BETHEL'S
THOROUGHFARE PLAN

MAY 1979

Technical Assistance Provided By:

The Mid-East Commission
P. O. Drawer 1218
Washington, North Carolina 27889

PROJECT STAFF

Jack J. Cochran, Project Planner
Emma S. Payne, Secretary

The preparation of this report was financially aided through a federal grant from the Department of Housing and Urban Development, under the Urban Planning Assistance Program authorized by Section 701 of the Housing Act of 1954 as amended. The grant was made through the State of North Carolina, Department of Administration, State Planning Division.

TABLE OF CONTENTS

Page

I. Introduction.................................... 1

II. Principles of Thoroughfare Planning............ 3

Objectives.................................... 3
Street Classification......................... 4
Philosophy of Approach........................ 10

III. Thoroughfare Planning Area..................... 11

Population.................................... 11
Economy....................................... 13
Land Use...................................... 16
Future Projections............................ 17
Motor Vehicle Registration.................... 18

IV. Current Transportation Conditions............. 19

Major Arteries................................ 19
Town System................................... 19
Loop Street................................... 20
Accident Patterns............................. 21
Traffic Volume Patterns....................... 23
Residential Traffic Generation................ 25
Through Traffic............................... 28

V. Proposed Thoroughfare Plan.................... 29

Summary of Findings........................... 29
Implementation of the Thoroughfare System. 33
State-Municipal Adoption of Thoroughfare Plan.. 34
Subdivision Planning and Zoning............... 36
Capital Improvements Program.................. 37

INTRODUCTION

The following thoroughfare plan outlines a proposed system of streets and highway to serve a basis for future development decisions which affect Bethel's transportation network.

This plan was developed in conjunction with the thoroughfare planning principles described in the second chapter of this report. It was also formulated in accordance with established land use planning practices and principles. It is based upon general traffic, population, land use, economic information and trends. An analysis of current traffic conditions is based upon recent traffic counts for the previous eight years. Recent studies developed for the town have also been reviewed. Major and minor thoroughfares were located in accordance with existing and projected needs. Site suitability was considered through field investigations, aerial photos and existing land use and topographic conditions. The plan establishes those improvements which are anticipated through the year 2000.

The responsibility for the proposed improvements will be divided between the Highway Commission and the Town of Bethel. Since two governmental units are primarily involved in developing the proposed system adequate coordination is essential. Without sufficient understanding of the intentions of each governmental unit proper implementation of the plan is made less likely. Following mutual adoption of the

Thoroughfare Plan financial and resource commitments for its implementation should be developed as outlined in the final chapter of this report.

II. PRINCIPLES OF THOROUGHFARE PLANNING[1]

Objectives

Typically, streets in a city or town occupy up to thirty percent of the total developed land in the urban area. This permanent and expensive system often is the determining factor in how the community develops.

Streets provide two basic functions--vehicle movement and access to land. Basically, these two functions are incompatible. The ability of streets to carry traffic is reduced when those same streets provide access to property and vice versa. When an additional demand--storing vehicles (parking)--is made on the roadway, further impairment of its function is encountered.

While at low traffic volumes more than one function can be accommodated, as traffic volumes increase conflicts occur. Thus, it is essential that a system of streets be developed. One category of streets could provide access to property, while another category's primary function would be to carry traffic.

The objective of thoroughfare planning is to devise such a system of streets. The major benefits derived from such planning are: (1) Each street can be designed to perform a specific function. This permits savings in right-of-way construction and maintenance costs, protects residential neighborhoods, and encourages stability in travel and land use patterns. (2) Local officials and citizens are informed as to future improvements. Developers can design subdivisions to function in a non-conflicting manner. School and park officials can better locate their facilities. Irreparable damage to property values and community appearance, as is sometimes associated with street building and widening programs, can be minimized. Town officials will know when improvements will be needed and can schedule funds accordingly.

---

[1] This section was derived largely from thoroughfare plans prepared by the North Carolina State Highway Commission, Advanced Planning Department.

In order to achieve the above objective, the road system is divided into several categories of streets, each category designed to perform a specific function. A discussion of this classification system follows:

Street Classification

Local Access Streets: These streets have the purpose of providing access to abutting property. They are not intended to carry heavy volumes of traffic and should be located in such a way to serve only traffic with origins or destinations on these streets. There are several different types of local access streets which can be classified according to the type of abutting land use which they serve. They are:

Residential Streets: Residential streets provide access to abutting residential property. Through traffic movements should be discouraged by designing them as loops or cul-de-sacs (dead-end streets with turn arounds.) These streets should have two traffic lanes and may have parking on one or both sides. They should have a minimum right-of-way of 60 feet.

Commercial Streets: Commercial streets provide access to abutting commercial property. They permit traffic to circulate in commercial areas and to reach parking facilities near their desired destinations. These streets should have sufficient width to provide two traffic lanes; and, if on street parking is permitted, sufficient width for parking operation lanes and parking spaces. If a commercial street is used as a thoroughfare, additional traffic lanes may be required.

Industrial Streets: Industrial streets provide access to abutting industrial development. They usually have a higher percentage of truck traffic, and loading and unloading may take place on the street. Two traffic lanes should be provided with additional street width for parking or loading and unloading, if either is permitted. A minimum right-of-way of 60 feet is desirable.

Minor Thoroughfares: These are more important streets in the city system. They perform the function of collecting traffic from residential, commercial, and industrial streets and carrying it to the major thoroughfares. In some cases, they may supplement the major thoroughfare system by facilitating a minor through traffic movement. In either case, they perform an additional function by also serving abutting residential, commercial, or industrial property. Minor thoroughfares should be designed to serve only a limited area to prevent their development as major thoroughfares. Two or four traffic lanes may be required, depending on traffic volumes, and parking may be permitted on both sides. Right-of-way may vary upwards from a recommended minimum of 60 feet.

Major Thoroughfares: Major thoroughfares provide for (1) the movement of traffic from one area of the city to another; (2) through traffic movements, and (3) movement of traffic into and out of the city. The streets which comprise the major thoroughfare system may also serve abutting property; however, THEIR MAJOR FUNCTION IS TO CARRY TRAFFIC. They should not be bordered by uncontrolled strip development. Such development lowers the capacity of the thoroughfare significantly and each driveway is a danger and impediment to traffic flow. Major thoroughfares may range from a two-lane street carrying minor traffic volumes to major expressways with four or more traffic lanes. Design standards vary accordingly. Usually parking should not be permitted on major thoroughfares.

Idealized Major Thoroughfare System

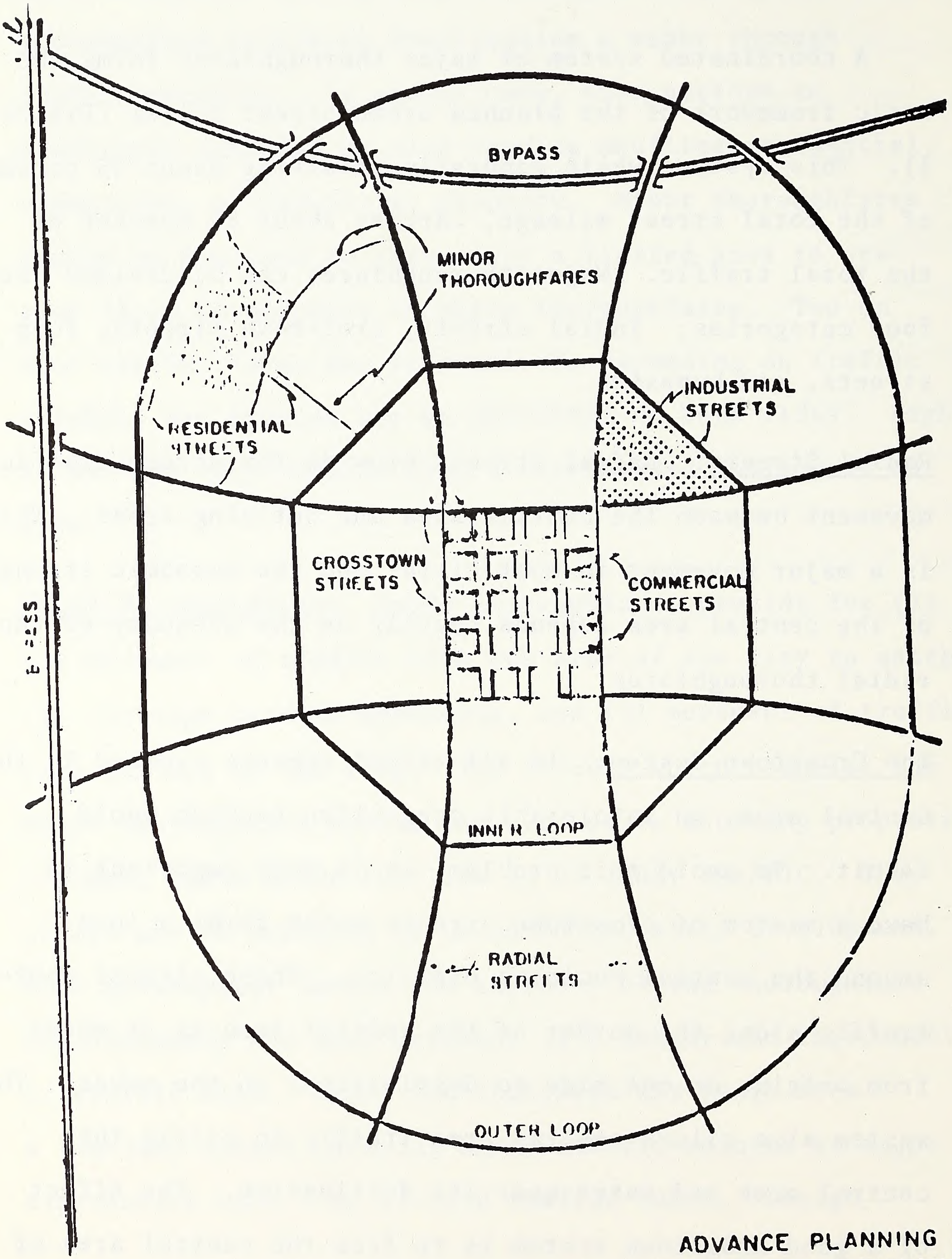
A coordinated system of major thoroughfares forms the basic framework of the planned urban street system (Figure 1). This system, while generally involving about 25 percent of the total street mileage, carries about 80 percent of the total traffic. Major thoroughfares can be divided into four categories: radial streets, crosstown streets, loop streets, and bypasses.

Radial Streets: Radial streets provide for direct traffic movement between the central area and outlying areas. This is a major movement in most cities and the economic strength of the central area depends heavily on the adequacy of the radial thoroughfares.

The Crosstown System: If all radial streets crossed in the central area, an intolerable congestion problem would result. To avoid this problem, it is very important to have a system of crosstown streets which forms a loop around the central business district. These streets route traffic along the border of the central area as it moves from origins on one side to destinations on the other. The system also allows central area traffic to circle the central area and enter near its destination. The effect of a good crosstown system is to free the central area of

FIGURE I

IDEALIZED THOROUGHFARE SYSTEM



ADVANCE PLANNING DEPARTMENT
N.C. STATE HIGHWAY COMMISSION

LEGEND

⠿ INDUSTRIAL USES
⠂ RESIDENTIAL USES
▨ COMMERCIAL USES

crosstown traffic, thus permitting the central area to better function in its role as a pedestrian shopping area.

The Loop System: Loop streets move traffic between suburban areas of the city. Although a loop may completely encircle the city, a typical trip would be from an origin near a radial thoroughfare to a destination near another radial thoroughfare. Loop streets do not necessarily carry heavy volumes of traffic, but they function to help relieve central area congestion and shorten travel times between suburban areas. There may be one or more loops, depending on the size of the urban area, and they are generally spaced one-half mile to one mile apart, depending on the intensity of land use.

The Bypass: Bypasses function to carry traffic through or around the urban area. They are generally designed to rural highway standards with control of access. The general effect of the bypass is to expedite the movement of through traffic and to lessen traffic congestion within the city. Occasionally a low traffic volume bypass can be designed to function as a portion of an urban loop.

Philosophy of Approach

The previous description of the idealized thoroughfare system applies to the general situation. While the same basic principle apply, it is not the purpose of the thoroughfare plan to present an idealistic pattern superimposed on the existing street system. Thoroughfare planning is done for residential urban areas and based on anticipated future development. Residential areas, schools, railroads, public and semi-public land use locations, topographic features, and many other factors all exert influences on the locations of thoroughfares. It is also necessary that maximum advantage be taken of the existing basic street system which represents a major monetary investment and the thoroughfare plan must be compatible with other elements of the urban planning and development program.

THOROUGHFARE PLANNING AREA

For the purpose of this study the Bethel planning area was used as the thoroughfare planning area. This includes the total extra territorial area of Bethel and a one mile extra territorial jurisdiction beyond the corporate limits.

Four major factors affecting transportation will be examined. They are: (1) population characteristics; (2) trends in the local economy; (3) past and current trends in land development; and (4) motor vehicle registration and usage. Each of these elements will be examined to determine the future transportation needs of the town.

Population[1]

Bethel has been growing in a relatively consistent manner for the past thirty-five years. The growth rate did decline somewhat during the period 1960 to 1970 but since that time the growth appears to have recovered. Generally the towns population growth rate has been higher than that of Pitt County as a whole. The current population is estimated to exceed 1872 persons.

TABLE 1

Population Trends
In
Bethel, Greenville and Pitt County 1960-1980

1940	---	12,691	---	61,244
1950	17.44%	16,713	24.07%	63,789
1960	26.57%	22,800	26.70%	69,942
1970	9.91%	29,063	21.55%	73,900
1976	15.58	34,740	16.34%	79,500
1980	19.58%	38,000	23.52%	82,000

Source: Linear Extension Based Upon Bureau of the Census Figures.

Based upon a household survey, the racial distribution within the town is estimated to be roughly equal. The average age for individuals within Bethel is 37.3 years; there is an indication that the population base is aging somewhat. On the average there are 3.0 persons per household within Bethel. Black households have a slightly larger average size than White households. There is a higher proportion of Black school age children than White school age children within the general population and a slightly higher proportion of White working age persons residing within the town.

Economy[2]

Bethel has had a long history of being a market community for farm products. More recently the economy has become more diversified and many factors now play a role in the economic growth of the town.

The employed population of the community was classified according to the kind of work they perform. It was found that the distribution of employed persons in Bethel is very close to that of the nation as a whole. This indicates that the town has a fairly diversified and stable employment base.

Approximately 35% of the town's population is employed on a full time basis. There is a higher percentage of White than Black persons employed. Since there are more working age White persons than Black persons residing within the town one would expect a higher employment of White individuals. The ratio, however, is greater than what one would reasonably expect.

Most job holders are employed in Bethel, Tarboro, Pitt County and Conetoe. (38.93%) - (±8.34) Bethel is not an economic satellite of any one area though the majority of employed town residents work outside of the corporate limits.

A high proportion of home ownership tends to create a greater concern on the part of the residents for the well being of a community. There has been a significant increase in home ownership for both Black and White residents since 1970.

Another measure of community well being which also includes housing is the percentage of the population which reside in overcrowded conditions. The degree of overcrowdedness (5.45%) in Bethel has been improved and is now approximately half that of 1970.

Possibly the most important economic indicator, is the sensitivity of different kinds of employment to economic fluctuations. Nearly 50% of those employed held positions which receive little or no marginal adverse affect during recessions. This implies that the town is less severely affected by economic hard times than those locales with a different employment composition.

Land Use

Approximately 75% of the total land area within the transportation planning area has not been developed for urban use. Most of the undeveloped land is pasture, forest or used for productive agricultural purposes. Most of the land within the corporate limits has been developed. Some areas within the corporate limits (approximately 20%) have not been converted to urban uses.

Residential areas account for 36% of the developed land within the town of Bethel. A housing survey conducted in 1977 reveals that 94% of all residential units are single-family detached houses. No single area of the town has a high concentration of multi-family units.

Land devoted to transportation facilities occupies 16.0% of the total developed land. This represents the second highest single category for developed property. Commercial, industrial and public and semi-public activities comprise the remaining.

The most striking characteristic of the land use system within Bethel is the modified gridiron pattern imposed upon the town by the street network. There is an absence of the more pleasing curvilinear street pattern that is typical is newer developments in many communities of the nation. The curvilinear pattern is characterized by cul-de-sac and loop streets. Streets such as these reduce the speed and volume of traffic flow within residential neighborhoods. Curved streets and those which terminate in a circle discourage motorists from such residential roads as through traffic arteries.

Another striking feature of the land use pattern of the town is that the majority of undeveloped land is found at the Eastern and Western fringes of the corporate limits and to some extent is the Southern fringe of the corporate limits. Development in these areas would be encouraged with a properly designed loop and bypass system.

Major traffic generators outside of the central business area are, located south along N. C. Highway 11- U. S. 13 (South Main Street) along U. S. Highway 64, and Railroad Street.

Future Projections

The Bethel Land Development Plan, 1978, examines the major constraints and trends affecting growth in the Bethel area. The plan examines the major factors which will affect any growth within Bethel through the year 2000. The plan anticipates that future development in Bethel will continue to proceed outward from the Coastal areas of town. Most of the areas the east and west of the corporate limits near the railroad is projected for industrial and commercial uses while the balance of the fringe growth areas are slated to be residential.

The major constraining factors affecting future growth in Bethel are the Grindle Creek area and essentially all of which have soils limitations for development especially the Northern, Southern, and Southeastern areas of the town. However, the Bethel Land Development Plan projects most growth to occur in the western area, as this area has relatively less developmental limitations than the other areas.

Motor Vehicle Registration

Motor vehicle registration in the United States has increased at a much greater rate than the population. Vehicle ownership trends in North Carolina, Pitt County, and Bethel for the period 1972-1978 are shown on table II.

TABLE II

Motor Vehicle Registration, 1972-1978
North Carolina, Pitt County and Bethel

Year	NC	Pitt County	Bethel
1972	3,692,919	42,773	626
1973	3,978,413	45,224	669
1974	4,145,821	47,244	798
1975	4,274,227	51,024	857
1976	4,490,294	54,546	926
1977	4,695,259	57,204	959
1978			991

CURRENT TRANSPORTATION CONDITIONS

Major Arteries

The major elements affecting the transportation network in Bethel is U. S. Route 64 and 13. U. S. 64 is oriented east-west and serves as a primary traffic artery between the Piedmont area of the State and the Northeastern and Coastal portions of the State. Access points to Route 64 within the Bethel Planning area are located at intersections of U. S. 64 with U. S. 13 which is controlled by a traffic signal; Railroad Street; Smith Street; S. R. 1429; and S. R. 1431.

U. S. 13 is another major traffic artery in the Bethel Planning Area. This two lane highway serves as a principal link between the Greenville and eastern-central point of the State and the North Central part of the State.

Also N. C. 11 serves as a primary artery or spoke for the entire East Central portion of the State.

Town System

Because of the gridiron transportation system, it is difficult to develop a heirarchy of streets within the town. The streets which function as radial streets to bring traffic into or through the central portions of town include the following:

U. S. 64 and U. S. 13 (East Washington Street)

U. S. 13 and N. C. 11 (South Main Street)

U. S. 64 (West Washington Street)

N. C. 11 (North Main Street)
Railroad Street

The streets which tend to function as cross-town streets include the following:

South Main Street
North Main Street
East Washington Street
West Washington Street
Smith Street
Cherry Street
James Street
Church Street

Loop Streets

A partial half loop pattern system exists in Bethel. The loop pattern serves to relieve some of the traffic flow from the central area of the town. The system is composed of Church Street and Cherry Street. The loop system currently does not provide a circumferential pattern for the Eastern and Northern parts of the town.

Accident Patterns

Traffic accident data for the Town of Bethel during the ten-year period of 1968-1978 was gathered from the accident reports of the Town Police Department. All accidents causing property damage or bodily injury were included. If ten or less accidents occurred over the period along a street or at an intersection they were compiled under the "other" category.

There was a total of 371 reported accidents during the ten-year period. Of all the accidents that occurred there were no facilities. The largest number of accidents occurred along Highways 64 and 11. The intersections with the greatest number of accidents were: Highway 64 and 11; Highway 11 and Church; and Highway 11 and Railroad. There were also a large number of accidents occurring in parking lots.

And of the accident reports indicates that a large proportion were the result of vehicles entering streets from alleys, driveways and parking lots. This is especially true of a number of accidents which occurred in the downtown area. A large percentage of the accidents occurred along Highways 64 and 11 and at the intersection of Highways 64 and 11. If adequate circumferential routes are provided much of the accident problems associated with these thoroughfares will be alleviated.

TABLE III

Summary of Traffic Accidents, 1968-November 1978
Town of Bethel, North Carolina

Location	Total Frequency
Highway 11	64
Highway 64 and 11	55
Private Property (Parking Lots)	38
Highway 64	28
Railroad Street	18
Highway 11 and Church	17
Highway 11 and Railroad	16
Highway 64 and East	11
Highway 64 and James	11
Church Street	11
James and Railroad	11
Other	91

Traffic Volume Patterns

The traffic volume patterns of the previous seven years indicate that the principal arteries have been gaining in traffic volume. Principally, Washington Street (U. S. 64 and 13); and Main Street (N. C. 11 and U. S. 13) have seen a considerable growth of average daily traffic volume. Over the seven years (See table IV) the largest increase by far has occurred on Main Street, north of the railroad (47%). Also three other points have increased in traffic by approximately one third as much: 1) Main Street, south of U. S. 64, 2) Main Street, south of S. R. 1429 and 3) Washington Street, west of Railroad Street. Also there has been an approximate 25% increase at these following points: 1) Main Street, north at town corporate limits, 2) Washington Street, east of N. C. 11, and 3) Washington Street, west of N. C. 11. Although there is an absence of some data in the table those other points had significant increases, 1) Main Street, north of town limits, 2) Washington Street, east of S. R. 1434, 3) Washington Street, west of town limits.

The overall pattern appears to be one of increased traffic through the center of town. This trend should be reversed for through traffic and the thoroughfare plan should be designed to minimize through traffic in downtown Bethel. Roads such as Railroad Street and S. R. 1500 have had no or only marginal increase in traffic volume.

TABLE IV

Traffic Volume Patterns 1970-1977

Bethel, North Carolina

Street	1970	1973	1974	1976	1977
Main Street (N. of RR)	2850	3200	----	----	5400
Main Street (N. at Town Limits)	1500	1800	1900	2200	2000
Main Street (N. of 64 and South of Railroad)	3300	3600	----	----	----
Main Street (South of 64)	4500	4850	5100	5200	6000
Main Street (South of 1429)	3350	4200	4000	4300	4900
Washington Street (E. of 1434)	3650	3800	----	----	----
Washington Street (E. of 11)	4100	4300	4100	4200	5500
Washington Street (W. of 11)	4300	4800	5000	5100	5600
Washington Street (W. at Town Limits)	3500	4000	----	----	----
Washington Street (W. of RR Street)	3800	4100	4900	5500	5650
Railroad Street (E. at Town Limits)	700	----	700	----	750
Railraod Street (W. of 11)	1500	1500	1500	----	----
Railroad Street (W. at Town Limits)	900	900	900	----	----
S. R. 1500 (E. at Town Limits)	550	550	500	----	800

Source: Department of Transportation, Average Daily Traffic Counts

The plan should also focus upon greater utilization of roadways which are not intended primarily for residential use (See table IV).

Residential Traffic Generation

In order to determine the average amount of traffic generated by residential areas in Bethel a trip generation estimated was calculated. Three residential divisions of Bethel have been employed for this purpose. The relative compact form of the Town of Bethel permits residential access to a number of collector roadways within the town. The gridiron pattern permits more free flow of traffic through the town. Consequently, the development pattern is such that relatively few residential neighborhoods funnel traffic to major streets at single points. (See Map 1)

For the purposes of this study a trip is defined as a one-way vehicle movement with either the origin or the destination in the study area. The number of trips was calculated by multiplying the number of dwelling units in each residential area by a trip rate factor of 9.51 trips per dwelling unit per weekday.* One method of considering this information is to realize that one individual going from home to work and returning generates two trips (see Table V).

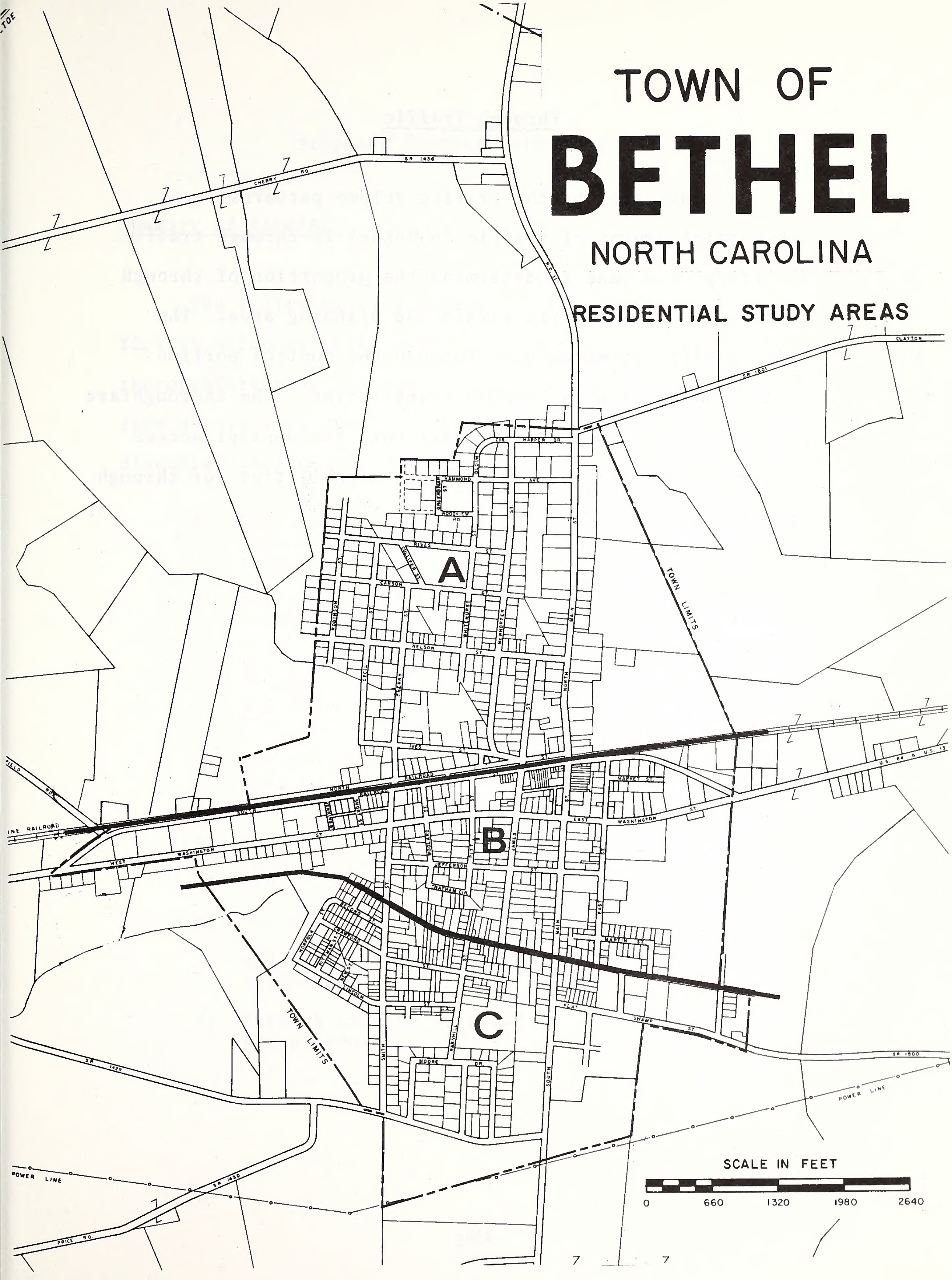
TABLE V

Trips Generated By Residential Area

Study Area	Potential Daily Trips
A	2186
B	2480
C	2039

Area B has the highest number of potential daily trips generated. Most additional growth that is projected for the town will occur outside of this area. The proposed U. S. 64 bypass and a possible N. C. 11/U. S. 13 Southeastern Loop would facilitate better traffic movement in and around this area. These potential problems should be addressed in a transportation plan.

* After - Trip Generation By Land Use - Transportation and Planning Office, Urban Area of County, Arizona, 1974.



TOWN OF
BETHEL
NORTH CAROLINA
RESIDENTIAL STUDY AREAS

Through Traffic

As indicated by the traffic volume patterns, a substantial amount of traffic in Bethel is through traffic. No attempt was made to determine the proportion of through traffic to total traffic within the planning area. The major traffic arteries pass through the control portion of town which reduces through transit time. The thoroughfare plan should be designed to permit both residential access to circumferential route and bypass capabilities for through traffic vehicle.

Proposed Thoroughfare Plan

Summary of Findings

The following is a summary list of existing needs or factors which are pertinent to the development of a thoroughfare plan in Bethel. This information resulted from an examination of existing conditions which have been discussed in previous chapters.

1) Residential access needs should be one of the principal consideration in the design of a thoroughfare plan.
2) Development of the town has not occurred as readily in the eastern and western sectors.
3) The major physical constraints to the future development of the town are Grindle Creek and areas with poor soils which include most areas of the town.
4) The growth rate of Bethel's vehicular population has been higher than that of the citizens population.
5) The gridiron street pattern of the town has inhibited a clear notion of the intended use of the streets.
6) Traffic accidents most often occur along the major arteries. The intersection of Main and Washington Streets may warrant special attention.
7) Through traffic is needlessly delayed under the present system.

The Proposed Thoroughfare System

(See Map 2)

1) Presently under consideration by D. O. T. is the east-west improvement of US Highway 64 corridor. It is anticipated that sometime in the future the existing US Route will be routed around the town. This will relieve the conflict of heavy through-traffic mixing with local traffic.

2) There are plans to widen North Carolina Highway 11-13 from Greenville north to Bethel. This route will be routed around the eastern side of town to connect with US 13--and on to intersect with the existing NC 11 north of the town. Right-of-way studies are currently being conducted.

3) The major radial facilities for the town are already in existence, these include: US 64, US 13, NC 11, NC 30, SR 1433, SR 1500, and SR 1501.

4) Washington Street, South Railroad Street, and the SR 1500--Church Street, Robinson Street loop are shown as a major facility because of the major crosstown route function they serve. Church Street has also been tied into Jenkins Street to provide continuity.

5) Connections are proposed for Nelson Street to the SR 1429 loop and for Robinson Street, northward to Cherry Road.

6) SR 1429 and its northern extension to Cherry Road (SR 1436) form an outer loop system for the western part of the planning area.

7) The SR 1500--Church Street connector, the SR 1433 extension to Washington Street, and the northeastern extension of the SR 1429 outer loop to Cherry Road are shown as long range projects. The SR 1500--Church Street connector is designed to allow aystem continuity, and as traffic volumes build to eliminate the existing dogleg intersection. The SR 1433 extension will become necessary if the proposed South Railroad Street--Washington Street one-way pair if implemented. The northeastern extension of 1429 to Cherry Road will allow outer loop traffic to flow towards Highway 11 north.

8) Prior to implementation of the South Railroad Street, Washington Street one-way pair proposal, additional study should be made of its effect on the internal travel patterns and the possible impact on the central business district.

Implementation of the Thoroughfare System

There are a number of methods which a town such as Bethel can use to implement its thoroughfare plan. Proper and concerted use of these methods can assure the development of the planned transportation network.

State-Municipal Adoption of a Thoroughfare Plan

Chapter 136, Article 3A, Section 136-66.2 of the General Statutes of North Carolina provides for the adoption of a municipal thoroughfare plan after its development. Once developed the thoroughfare plan may be adopted by the local governing body and then the Highway Commission. It will then become the basis for future street and highway improvements in and around the municipality. Following the mutual adoption of a thoroughfare plan negotiations will begin to determine which of the existing and proposed thoroughfares will be a Highway Commission responsibility. Facilities which are designated a Highway Commission responsibility will be constructed and maintained by the Commission. The local government, however, will share in the right-of-way acquisition costs. The actual share of the costs will be determined at the time of construction.

The Department of Transportation classifies three basic types of thoroughfare plans:

Type A Plan - A sketch throughfare plan developed on the basis of very general population, land use, and land development data. Existing traffic conditions may be examined but there is no projection of traffic to a future design year.

Type B Plan - A more detailed thoroughfare plan which includes more detailed population, land use, and development studies and involves the projection of traffic volumes to future years to determine design requirements and construction priorities. Traffic-carrying capacity of the existing street system is examined and an inventory made of the existing system. Off-street parking and mass transit also be investigated.

Type C Plan - A detailed thoroughfare plan, including all of the studies in a Type B Plan and with the plan detailed to the extent that the proposed system of thoroughfares are delineated on topographic maps of a horizontal scale of 1 inch = 100 feet or 1 inch = 200 feet.

The proposed thoroughfare plan for Bethel includes more detail than the Type A Plan, but does not include an origin-destination study and the design requirements of a Type B Plan. Upon approval of this plan by the town of Bethel and the Highway Commission, steps should be taken to establish definite locations of the proposed roadways. Work should begin to establish such locations through cooperation with the Survey and Planning Branch, of the Department of Transportation. Such efforts will greatly reduce ambiguities in the proper enforcement of the Subdivision Regulations and lessen the confusion of property owners and developers.

Subdivision Control

Bethel's subdivision regulations require that every proposed subdivision of land be reviewed by the Planning Board and Board of Commissioners. Through this process it is possible to reserve or protect the necessary rights-of-way for projected streets which are a part of the thoroughfare plan. This procedure also assures that streets will be constructed in accordance with the plan.

The following table gives the design requirements which are established in the Subdivision Regulations.

TABLE VI

Street Design Requirements
Bethel Subdivision Regulations

Street	Row Widths	(Minimum)	Pavement Widths (Minimum)
Type	In Town	Outside Town	Inside and Outside Town
Collector	60 feet	60 feet	41
Minor	40 feet	60 feet	27
Marginal Access	40 feet	60 feet	25

Source: Bethel Subdivision Regulations - Article VIII
Section 81.1

Land Development Planning and Zoning

The Land Development Plan and Zoning Ordinance can be very important to thoroughfare planning. Planned locations of activities and residential densities have an impact upon the utility of the transportation network. Projected and permitted residential use and population densities provide a basis for future traffic projections which permit decisions concerning road needs.

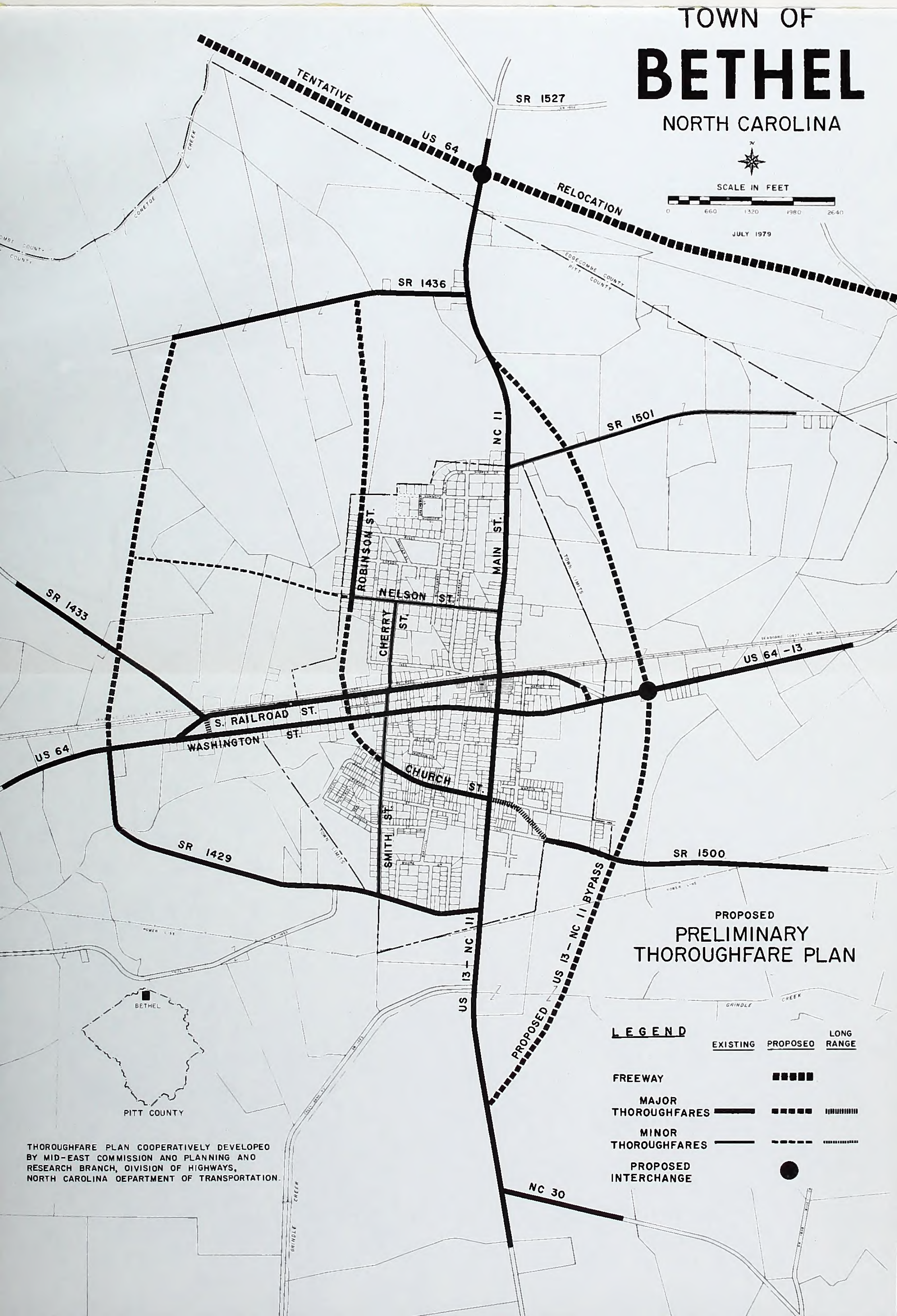
The benefits of a good zoning ordinance include:

1. Standards for development which will aid traffic operations on streets and thoroughfares
2. Minimization of Strip Commercial development
3. Provisions for adequate off-street parking in new developments
4. Provisions for adequate visibility at intersections and along curves.

Capital Improvements Program

A very important procedure for developing a thoroughfare plan includes tying local financial commitments to the proposed plans. A separate capital category should be established in the Capital Improvements Program for major and minor thoroughfares. This category should be established primarily for Right-of-Way acquisitions. Proven financial commitment by the locality is viewed favorably by the Department of Transportation and often facilitate a like commitment for highway funds.

TOWN OF
BETHEL
NORTH CAROLINA



PROPOSED
PRELIMINARY THOROUGHFARE PLAN

THOROUGHFARE PLAN COOPERATIVELY DEVELOPED
BY MID-EAST COMMISSION AND PLANNING AND
RESEARCH BRANCH, DIVISION OF HIGHWAYS,
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION.

Technical Assistance Provided By:

MID-EAST COMMISSION

WASHINGTON, NORTH CAROLINA